

# AGING AND THE EFFECTS OF SOCIAL-EMOTIONAL GOALS ON SELF-REGULATED READING

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## RATIONALE

Successful language performance is associated with strategic allocation of attentional resources (Stine-Morrow, Miller, & Hertzog, 2006), for example, as in increased processing effort in rereading to create a distinctive, elaborated representation of the text. Some have shown that while older adults may show age deficits in text memory when asked to recall to an experimenter, those deficits may disappear in a social context that makes recall a meaningful task, for example, telling stories to a child (Adams et al., 2002). These data are consistent with socioemotional selectivity theory (Carstensen et al., 1999), suggesting that social-emotional goals differentially promote older adults' memory performance by motivating cognitive processing in late life. This experiment examined the effects of social-emotional goals on resource allocation during reading, rereading, and subsequent recall.

## METHODS

### Participants

	Young	Old
N	28	33
Age Range	19-35	60-82
Age <sup>†*</sup>	21.04 (.76)	71.09 (1.1)
Education <sup>†</sup>	14.73 (.44)	15.53 (.48)
Vocabulary <sup>†a</sup>	45.86 (1.21)	46.76 (1.39)
Working Memory <sup>†*b</sup>	5.93 (.21)	4.01 (.26)

<sup>†</sup> means are provided with standard errors in parentheses

\* significant group difference

<sup>a</sup> Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1987)

<sup>b</sup> reading span (Stine & Hindman, 1994)

### Design and Procedure

Subjects read and reread a set of short Aesop's fables (similar in length, familiarity, and number of new concepts) sector-by-sector on a computer screen.

Before reading, participants were randomly assigned to either read the stories to retell to a child (3-7 years of age; child-listener) or to recall to an experimenter (experimenter-listener).



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## RESULTS

### Global Rereading Effects

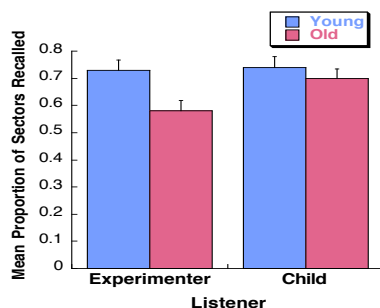
Perseverance in rereading within each age group as a function of the listener condition was assessed by regressing median sector rereading times ( $RT_2$ ) onto reading times at the first encounter ( $RT_1$ ).

Both younger and older groups showed a greater rereading slope in the child-listener ( $Y: RT_2 = .60RT_1 + 321$ ;  $O: RT_2 = .58RT_1 + 248$ ) than in the experimenter-listener condition ( $Y: RT_2 = .52RT_1 + 259$ ;  $O: RT_2 = .53RT_1 + 426$ ) [for young,  $t(512) = 2.22, p < .01$ ; for old,  $t(512) = 1.79, p < .05$ ].

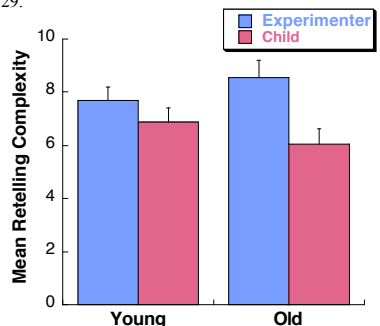
### Story Recall

Recall protocols were scored using a gist-based method of propositional scoring in which idea units were scored with a 0 if no information recalled for the original sector, a 2 if the idea was recalled from that sector, and a 1 for partial credit.

Consistent with Adams et al. (2002), there were age differences in memory in the experimenter-listener ( $M_Y = .73, M_O = .58$ ),  $t(28) = 2.52, p < .05$ , but not in the child-listener ( $M_Y = .74, M_O = .70$ ),  $t < 1$ , condition.



The Flesch-Kincaid grade level score was used as an index of retelling complexity. Older adults tended to adjust the complexity of retelling to the listener in recounting the story ( $t(31) = 2.90, p < .01$ , but the younger adults did not,  $t(26) = 1.09, p = .29$ ).



### Reading Time Allocation

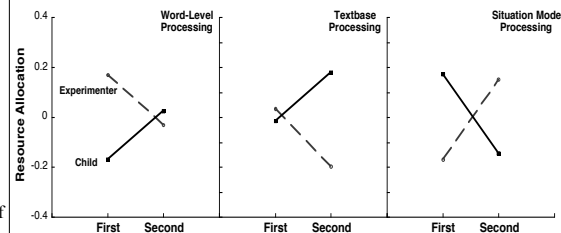
Individual regression analysis was used to decompose sector-by-sector reading times into resources allocated to text features reflecting word-level (number of syllables), textbase (number of new concepts), and situation model (introduction of a new discourse entity) processing.

Resources allocated to text features assessed in standardized scores were analyzed in a 2 (Age) X 2 (Listener) X 2 (Time: first reading or second reading) X 3 (Level: word, textbase, or situation model) repeated measures ANOVA. The effects of listener condition on resource allocation shifts in rereading depended on the level of text processes,  $F(2, 114) = 5.49, p < .01$ , for the significant three-way interaction. However, this three-way interaction was not moderated by age,  $F < 1$ .

**Word-level processing:** Both younger and older readers in the experimenter-listener condition allocated more time to word-level computations on the initial reading, then showed a rereading benefit, whereas those in the child-listener condition did not show this,  $F(1, 57) = 3.88, p < .06$ .

**Situation model processing:** Readers in the child-listener condition allocated more effort to the situation model on the first reading, then showed a rereading benefit. On the other hand, readers in the experimenter-listener condition showed more pronounced allocation to this level at rereading (Millis et al., 1998),  $F(1, 57) = 3.59, p = .06$ .

**Textbase processing:** The two listener conditions did not show differential change with rereading in this level of processing,  $F(1, 57) = 1.70, p = .20$ .



## CONCLUSIONS

Overall, both age groups demonstrated better perseverance across rereading in the child-listener condition.

There were qualitative differences in resource allocation in rereading as a function of the listener condition (i.e., the word-situation model shift in rereading), suggesting that the anticipated audience may shape encoding. However, no age differences were found in this aspect.

Consistent with previous findings (Adams et al., 2002), meaningful social goals differentially enhanced memory performance among older adults.

Older adults were more effective in story telling in that they were more likely to adjust the complexity of their retellings to the ages of listeners (Adams et al., 2002).

In conclusion, this data is consistent with the idea that self-regulation of reading is sensitive to the social-emotional context, however, we did not find evidence that older readers' better memory performance was due to encoding.

## REFERENCES

- Adams, C., Smith, M. C., Pasupathi, M., & Vitolo, L. (2002). Social context effects on story recall in older and younger women: Does the listener make a difference? *Journal of Gerontology: Psychological Sciences, 57B*, P28-P40.
- Carstensen, L. L., Isaacowitz, D. M., & Charles, S. T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist, 54*, 165-181.
- Stine-Morrow, E. A. L., Miller, L. M. S., & Hertzog, C. (2006). Aging and self-regulated language processing. *Psychological Bulletin, 132*, 582-606.
- Millis, K. K., Simon, S., & TenBroek, N. S. (1998). Resource allocation during the rereading of scientific texts. *Memory & Cognition, 26*, 232-246.